CLAIMS

1. A fuel cell, comprising:

a solid polymer electrolyte membrane (3);

a catalyst electrode layer (5) disposed on the solid polymer electrolyte membrane (3);

a gas diffusion layer (6) disposed on the catalyst electrode layer (5); and

a separator (1, 2) disposed on the gas diffusion layer (6) and forming an inlet manifold (7) and outlet manifold (8) between the electrolyte membrane (3), wherein:

one surface (6A) of the gas diffusion layer (6) faces the inlet manifold (7), and the other surface (6B) of the gas diffusion layer (6) faces the outlet manifold (8), the inlet manifold (7) and outlet manifold (8) being partitioned by the gas diffusion layer (6); and

gas flows from the one surface (6A) facing the inlet manifold (7) and into the gas diffusion layer (6), flows through the interior of the gas diffusion layer (6), and flows out from the other surface (6B) facing the outlet manifold (8).

2. The fuel cell as defined in Claim 1, wherein:

the width (W) of the gas diffusion layer (6) in a direction perpendicular to the laminar direction of the cells is formed larger than the distance (L) between the one surface (6A) and the other surface (6B).

3. The fuel cell as defined in Claim 1, wherein:

the gas diffusion layer (6) comprises a high transmission region (11, 12) and a low transmission region (13) having a smaller gas transmission factor than the high transmission region (11, 12),

the high transmission region (11, 12) comprises an inlet high transmission region (11) extending from the one surface (6A) toward the outlet manifold (8) without reaching the outlet manifold (8), and an outlet high transmission region (12) extending from the other surface (6B) toward the inlet manifold (7) without reaching the outlet manifold (7), the inlet high transmission region (11) and the outlet high transmission region (12) being disposed at a certain distance apart, and:

the low transmission region (13) is a remaining region apart from the high transmission region (11, 12) of the gas diffusion layer (6).

4. The fuel cell as defined in Claim 3, wherein:

the distance (D_L) between the an outlet manifold side end face (11B) of the inlet high transmission region (11) and an inlet manifold side end face (11A) of the outlet high transmission region (12), is longer than the distance (D_W) between the inlet high transmission region (11) and outlet high transmission region (12).

5. The fuel cell as defined in Claim 3, wherein:

the numerical density of the fibers in the high transmission region (10, 11) is smaller than the numerical density of the fibers in the low transmission region (13).

6. The fuel cell as defined in Claim 3, wherein:

the diameter of the fibers in the high transmission region (10, 11) is larger than the diameter of the fibers in the low transmission region (13).

7. The fuel cell as defined in any of Claims 3 to 6, wherein:

in the high transmission regions (10, 11), fibers are arranged in a direction perpendicular to the surface (6A, 6B) of the gas diffusion layer (6) in contact with the manifold (7, 8), and

in the low transmission region (13), fibers are arranged in a direction parallel to the surface (6A, 6B) of the gas diffusion layer (6) in contact with the manifold (7, 8).